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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/438,037	11/10/1999	DAVID V. CALETKA	EN9-99-080	8809

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EXAMINER

MITCHELL, JAMES M

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 06/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/438,037

Applicant(s)

CALETKA ET AL.

Examiner

James Mitchell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. This office action is in response to the election filed April 8, 2002.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 20-23 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
4. In regards to claim 20, there is no support in the specification for "non-directional conductive pads."
5. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claim 20-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 20-23 are ambiguous as to how the term non-directional further limits the scope of conductive pad.
7. In regards to claims 24 and 25, there is insufficient antecedent basis for the limitation "the first dimension".

Claim Rejections - 35 USC § 102

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8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 14, 19, 20-23 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Caletka (U.S. 6, 247,474).

10. Caletka (Fig 4 and 5) discloses an integrated chip package comprising a first substrate (12) and a second substrate (16), wherein the first substrate and second substrate include a plurality of inherent partially captured circular pads (14 or 18; pad captured by solder mask, 20 or 22 covering a partial portion of the package, a plurality of non-directional conductive pads (14, 18, 24, 28; interpreted as a pad) and a non-wettable polymer mask (20,22) formed thereon with a plurality of openings (14,18, 24, and 28) having a first dimension (24) larger than a portion of said pad and a second dimension (14) of said opening is smaller than a portion of said pad, wherein the package has an inherent combination of a mask defined (mask inherently controls/defines solder) in a first direction and pad defined (solder in contact with pad) in a second direction of solder joint profile, and a first dimension (length) is greater than a second dimension (depth) of said opening, wherein a first dimension (Length) of said opening (which encompasses all directions extending from the opening) occupies the same place in space as the interconnection and its subsequent highest stress, since the interconnection is formed within the opening, it coincides with the direction of highest stress in the interconnection.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

14. Claims 14-19, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiyoshi (JP 03-004545) in view of Shirai et al (U.S. 5,517,756).

15. Chiyoshi discloses an integrated chip package comprising a first substrate (10) and a second substrate (20), wherein the first substrate and second substrate include a plurality of inherent partially captured pads (11; pad captured by solder mask, non-wettable "passivation film", 12 covering a partial portion of the package), a plurality of

non-directional conductive pads (11; interpreted as a pad) formed thereon with a plurality of opening having a first dimension.

16. Chiyoshi does not appear to disclose forming captured pads by having elongated non-circular openings in said mask. However, Shirai (Fig. 5; Column 6, Lines 61-63) utilizes captured pads formed by non-circular rectangular mask openings, wherein the first dimension of the elongated noncircular mask opening is greater than the second dimension of the elongated noncircular mask opening, such that it forms a mask and pad solder joint profile.

17. However, it would have been obvious to one of ordinary skill in the art to modify the opening Chiyoshi with a non-circular opening in order to assure effective tolerance for film positioning deviation as taught by Shirai (Abstract).

18. In addition, a first dimension (Length) of said opening (which encompasses all directions extending from the opening) occupies the same place in space as the interconnection and it subsequent highest stress, since the interconnection is formed within the opening, it coincides with the direction of highest stress in the interconnection.

Response to Arguments

19. Applicant's arguments with respect to claims 14-26 have been considered but are moot in view of the new ground(s) of rejection. In regards to the rejection under 35 U.S.C. 112, first paragraph, applicant's amendment has not overcome the prior rejection.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



jmm

June 17, 2002



KAMAND CUNEO
PRIMARY EXAMINER